uate of the class of 1868, and Mr. Raser's son, Mr. William Heyl Raser, of Reading, Pennsylvania, a graduate of the class of 1901. The library, which is one of the largest and most complete pharmaceutical libraries in the United States, includes the extensive private library of scientific books formerly owned by the late Professor Joseph P. Remington.

A GRANT has been made by the Julius Rosenwald Fund of $80,000 to be expended over a period of five years to the department of zoology of Howard University, to make possible the continuation of the research of Dr. Ernest E. Just and to build up a department offering instruction to graduate students.

DR. JOHN ROSCOE TURNER, formerly dean of the college of arts and science at New York University, was on November 28 installed as president of the West Virginia University. Among the representatives of the one hundred and forty-two American colleges and universities present at this occasion may be mentioned Dr. Samuel W. Parr, president of the American Chemical Society; Professor Paul M. Lincoln, head of the electrical engineering department of Cornell University, and Dr. David White, senior geologist of the U. S. Geological Survey, who addressed the science and engineering group; Dr. Thomas Peck Sprunt, associate in medicine at the Johns Hopkins University, and Dr. Harry M. Hall, president-elect of the West Virginia Medical Association, who addressed the medical group; Governor Howard M. Gore, governor of the State of West Virginia, and Dr. Albert F. Woods, director of scientific work in the U. S. Department of Agriculture, who addressed the agricultural group. Addresses were also made by noted jurists and educators before the law and education groups. The LL.D. degree was conferred upon Dr. Turner prior to his installation.

DR. HENRY DASPIT has been appointed dean of the graduate school of medicine of Tulane University of Louisiana, New Orleans, succeeding Dr. Edmund D. Martin.

THE following promotions on the Stanford faculty were made recently: Associate professors (to be professors): Charles Moser, in civil engineering; Clelia D. Mosher, in personal hygiene for women. Assistant professors (to be associate professors for a five-year term): Claus W. Jungeblut, in bacteriology; James Percy Baumberger, in physiology.

DR. E. J. LORENZ, of the California Institute of Technology, has been appointed professor of physics in the University of the City of Toledo.

EDGAR W. WOOLARD, assistant meteorologist, U. S. Weather Bureau, has resigned to accept an appointment as instructor in the department of mathematics at George Washington University.

FREDERICK JOHN MARRIAN STRATTON, fellow and tutor of Gonville and Caius College, formerly assistant director of the solar physics observatory, has been elected to the professorship of astrophysics at the University of Cambridge.

DISCUSSION AND CORRESPONDENCE

SAVING THE COCONUTS

WHEN recently in the Fiji Islands, I was able to see something of the important work in economic entomology carried on there. At Suva I found a Department of Agriculture, with Dr. J. D. Tothill in charge. I saw the details of the work and got much information from Messrs. R. W. Paine and H. W. Simmons. At Levuka I found Mr. and Mrs. T. H. Taylor, who had returned from an expedition to Trinidad (British West Indies), bringing five species of Coccinellid beetles (the best being *Cryptognatha nodiceps* Marshall) to prey on the scale insect *Aspidiotus destructor translucens* (Ckll.) (*A. transparens* of Green 1899, not 1890) which is so injurious to the foliage of coconut in Fiji. Mr. Taylor said that the scale was the third in importance of the coconut pests in Fiji. The first (until lately) being *Levuana*, discussed below; the second *Tirathaba*, a Pyralid moth with the aspect of a noctuid, the larva boring in the spathe. At Lautoka I found Mr. H. Greenwood, from New South Wales, in charge of the entomological laboratory of the Colonial Sugar Refining Company. He is a keen botanist as well as entomologist, and has been making a catalogue of all the insects of the Fiji Islands. I was able to witness the work against the sugar-cane weevil, *Rhabdocnemis obscurus* (Boisduval), by means of the dipterous parasite *Ceromasia sphenophori* Villen. This I hope to describe later, in a discussion of the pests of the sugar cane.

The matter of the greatest and most dramatic interest is the conquest of *Levuana* by an introduced dipterous (Tachinid) parasite. *Levuana iridescens*, a small, dark-colored, inconspicuous moth, was described by Bethune-Baker, a well-known English lepidopterist, in 1906. His material was from the Fiji Islands, and the genus *Levuana* contains to this day only the species *L. iridescens*. It belongs to the family Zygaenidae, known in the United States especially by those little caterpillars which appear in rows, like well-drilled soldiers, on the leaves of grape vines. The rather slug-like caterpillar of *Levuana* eats the green tissue of the coconut leaves, and when sufficiently numerous will kill the tree.

There is an old record of a coconut pest believed to be *Levuana,* in Fiji as early as 1871, but there is reason to believe that the species was introduced from some as yet undiscovered locality. Mr. Taylor told me that in New Guinea he found many related species feeding just as *Levuana* does, on palms and plants of the ginger family (Zingiberaceae). He did not, however, find *Levuana.* In New Caledonia I saw no trace of *Levuana,* though the coconuts were attacked by other pests, which I hope to discuss at another time.

Levuana remained in Fiji, attracting little attention, because not yet wide spread, for a number of years. But eventually it came to be recognized as a major pest, and one which, unchecked, would destroy all the coconuts. It began to spread, and in 1921–22 reached the Island of Ovalau. The indications were that it would eventually spread all over the Pacific Islands, destroying the coconut and bringing calamity to the natives. Mr. Paine told me that it reached Malolo, off the west coast, and killed the coconuts, itself perishing apparently from lack of food. It is not, however, confined to the coconut; it will attack ornamental palms and has been seen feeding on the leaves of the banana. So abundant did *Levuana* become that many perished because the cocoons were spun in masses, one over the other, with the result that the moths hatching below died without being able to emerge.

No enemies were adequate to check the scourge. A large attid spider of the subfamily Cytaeinae (*Ascyltus pterygodes* L. Koch) attacks *Levuana.* It is a beautiful animal, the cephalothorax and abdomen above green, the legs partly purple. Three species of Pentatomid bugs are enemies of *Levuana.* One, *Oechalia consocialis* (described from Australia), is a narrow species, with pointed scutellum. The second, *Cantheconidea cyanacantha* (described from Fiji), is brown, obtuse, the scutellum with a metallic blue spot on each side at base, the lateral spines of the prothorax also blue, as the specific name indicates. The third, *Platynopus* or *Pinthaeus melanacanthus,* has long, blue-black spines at sides of thorax, and has the end of the scutellum broad and pale yellow. A clerid beetle, *Callimerus arcufer,* was imported from the Malay Peninsula to feed on *Levuana,* but it was of no use, and the many colonies liberated apparently failed to establish themselves. The outlook was thus, for a time, discouraging, as none of the enemies mentioned could abate the plague.

In 1925 Dr. Aldrich, of the U. S. National Museum, described a new fly of the family Tachinidae as *Ptychomyia remota.* It was sent from the Federated Malay States, with the statement that it was a parasite of *Artona catoxantha* Hampson, a zygaenid moth seriously attacking coconuts. Dr. Tothill and his associates obtained living material of this fly, and liberated it in Fiji. Results were apparent in about six months. The fly spread with great rapidity, and in a short time the *Levuana* pest was practically a thing of the past. When I was in Suva, I was shown the coconut palms, with fresh green foliage, ready to bear abundant fruit. I could only imagine from descriptions what they looked like not long ago.

The entomological work in Fiji is supported to the extent of about half by the government, the other half by the planters, through a tax on copra.

As an example of successful biological control, through cooperation among scientific men, the case of *Levuana* could hardly be excelled. It should encourage further efforts along similar lines, teaching at the same time the importance of patiently and industriously following every clue. The only disadvantage is that a section of the public, seeing the entomological magicians thus work miracles, do not understand why they can not control any pest at any time.

T. D. A. COCKERELL

"AN UNEXPLAINED VISUAL PHENOMENON"

UNDER the above title, in SCIENCE for October 26, Mr. Gradle reported an extremely interesting observation. I am wondering whether the phenomenon is not due to the same underlying cause as the occasional stationary appearance of a rotating spoked wheel. Also, I have frequently observed that when I was stropping a razor, it gave the jerky appearance familiar in the "movie" of a rapid action; this appearance has occurred in sunlight as well as in artificial light. I have questioned several psychologists about it without any result. My only explanation (purely a hypothesis!) is that in certain individuals vision is not a steady process, but occurs at regular intervals, as by a stroboscopic disk. Or shall we say that vision is also quantized? Mr. Gradle can easily test this in his case by adjusting the speed of a spoked wheel until he can repeat his observation on the propeller.

As to the position of his eyes, it is well known that the peripheral portions of the retina have more acute vision in dim light than the central portion. When I walk over a trestle in dim light I always look straight ahead, and can see the ties more easily than when looking down.

PAUL F. GAEHR

WELLS COLLEGE,
AURORA, NEW YORK

REFERRING to Mr. Harry S. Gradle's letter in SCIENCE,[1] I might say that I have the same sort of

[1] October 26, 1928, p. 404.